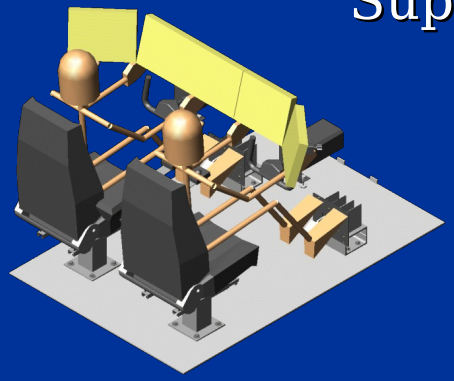
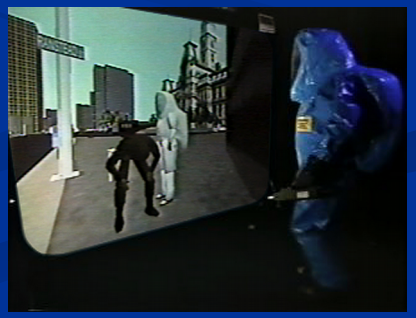
Next Generation Simulation Systems:

Research Development and Engineering Center,

Simulation Technology Center

Supporting Army Transformation



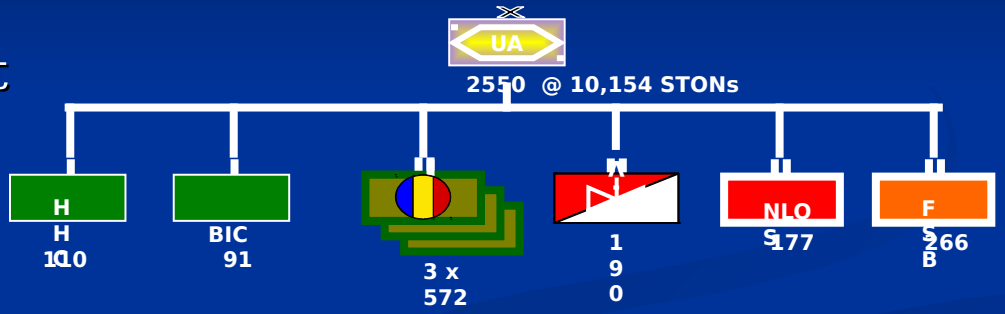


Transformation: New Mission Focuses

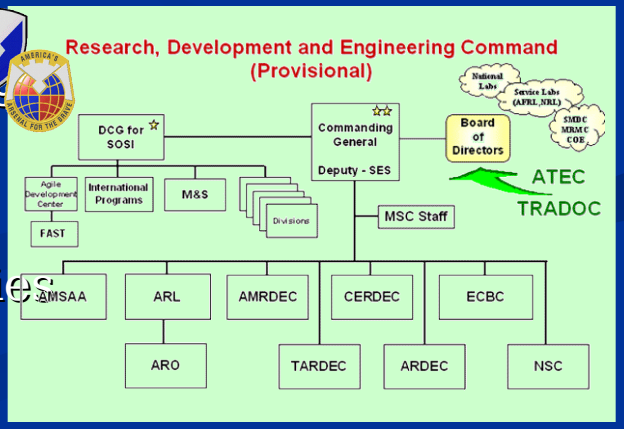
- War on Terrorism
  - Homeland Defense
  - Threat of Nuclear, Biological, & Chemical WMD
  - No Single Threat
- Increased Frequency of Operations Other Than War
- Push for More Joint Training

Transformation: New Organizations

- New Unit Organization
  - Stryker Brigade Combat Team
  - Unit of Action
  - Unit of Employment



- New Research Organization
  - Research Development and Engineering Command
    - Alignment of Science and Technology under Organization
    - Focusing on the FIELDING of technologies



Transformation: New Simulation Systems

- Homeland Defense
- Medical Simulation
- Embedded Simulation

Homeland Defense

Need to training emergency responders and war fighters in safe environments:

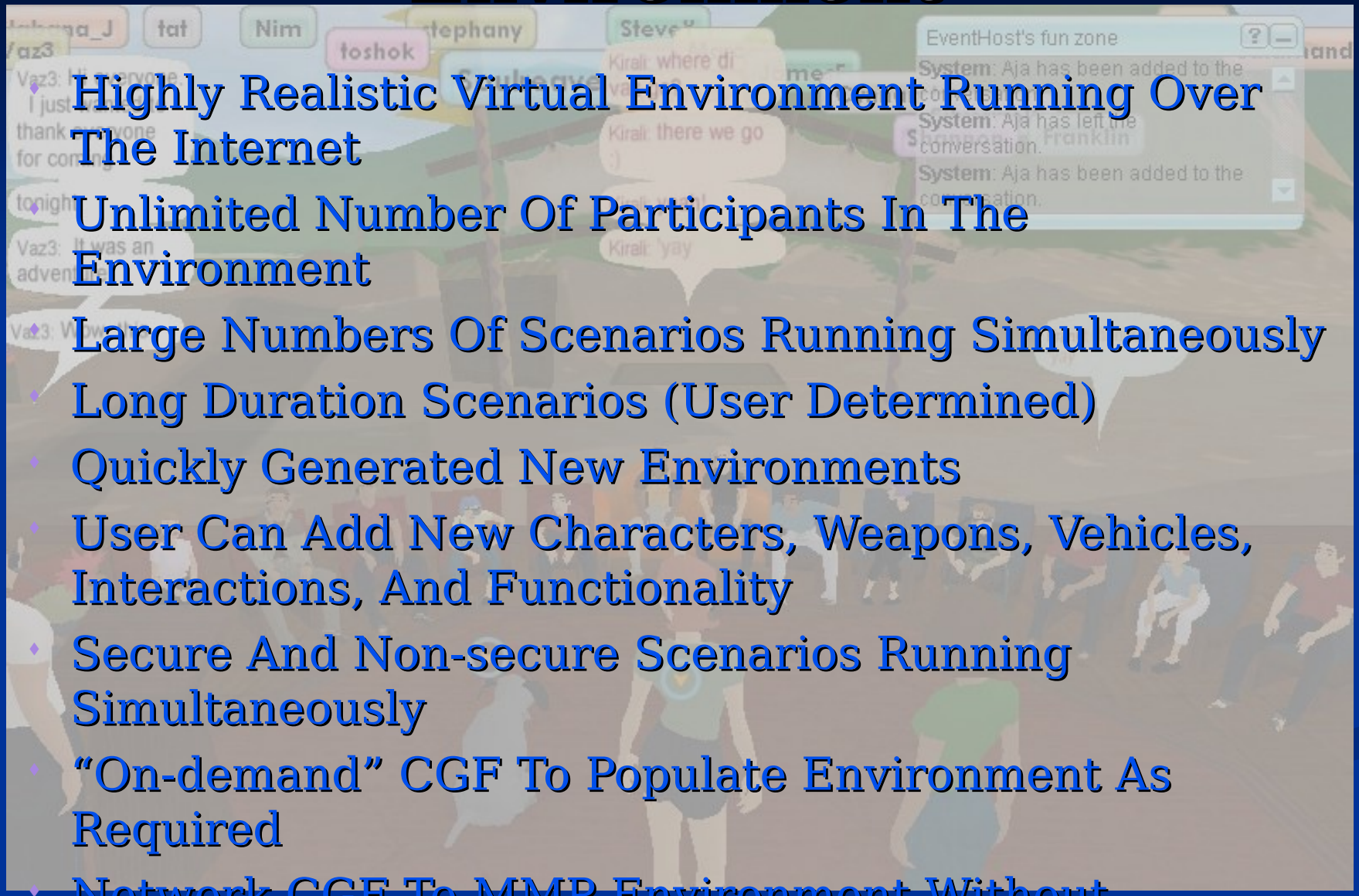
- Constructive And Virtual Immersive Simulators
- Massively Multi-player Environments
- Direct Application To The Civilian Sector
  - Other Federal Organizations
  - State Government
  - Local Authorities

VERTS Program

Virtual Emergency Response Training System

- Train installation commanders, their support staffs, and emergency responders
  - Military police, medics, fire fighters, and hazmat personnel
  - NBC attack on their installation
- Technologies
  - Immersive simulations
  - 3D virtual environments
  - Weapons or chemical/biological/nuclear detectors
  - Computer generated forces
    - Artificial intelligence
    - Modeling NBC threats
    - One semi-automated forces objective system (OOS)
  - Modeling communications
  - Live, virtual, & constructive linkages

Massively Multi-player Environment


tat
Nim
toshok
EventHost's fun zone
System: Aja has been added to the conversation.
System: Aja has left the conversation.
System: Aja has been added to the conversation.

- Highly Realistic Virtual Environment Running Over The Internet
- Unlimited Number Of Participants In The Environment
- Large Numbers Of Scenarios Running Simultaneously
- Long Duration Scenarios (User Determined)
- Quickly Generated New Environments
- User Can Add New Characters, Weapons, Vehicles, Interactions, And Functionality
- Secure And Non-secure Scenarios Running Simultaneously
- “On-demand” CGF To Populate Environment As Required
- Network CGF To MMP Environment Without Introducing Latencies Into The System

Massively Multi-Player Environment

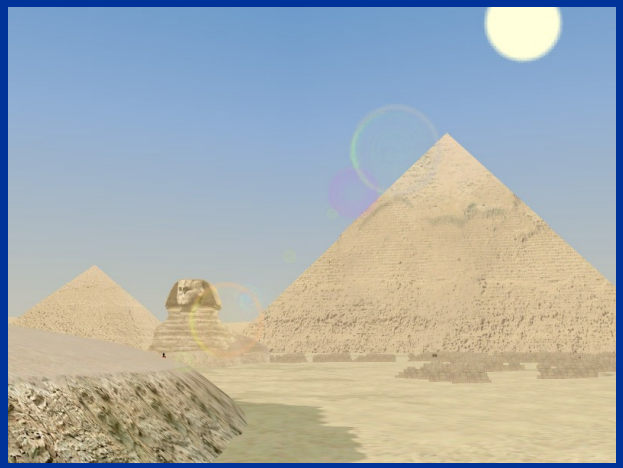
State of the Art in Gaming

There Inc's Commercial Environment

tat
Nim
toshok
Soulreave
Vaz3: Hi everyone. I just wanted to thank everyone for coming tonight.
Vaz3: It was an adventure!
Vaz3: Wow, this
Kirak: where di vaz go?
Kirak: there we go
Kirak: yeah!
Kirak: yay
EventHost's fun zone
System: Aja has been added to the conversation.
System: Aja has left the conversation.
System: Aja has been added to the conversation.
Frank: handup yay

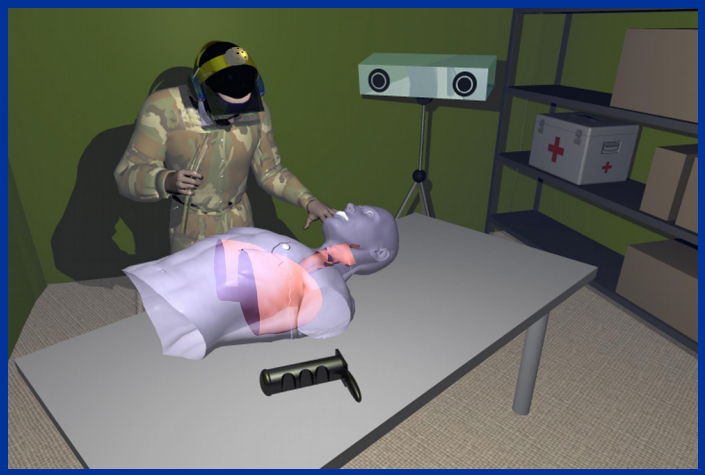
Massively Multi-Player Environment

Where the Army is Taking the Technology



Medical Simulations

- Need for Medical Simulations
  - Treatment of WMD Scenarios
  - Training of 91W
  - Reduce reliance on animals



CTPS Program

- Combat Trauma Patient Simulation
  - Models combat casualty footprint
  - Interactive distributed medical training system
  - Provides individual and team training in combat casualty care, NBC, and mass casualties
- Technologies
  - Physiologically and pharmacologically based models
  - Human Patient Simulator
  - Triage Control/Patient Management

Future Medical Simulations Research

- Research computer based learning tools
- Research new patient simulation technologies aimed at the 91W skill level
  - High realism (skin, wounds,
  - secretions, physiologically
  - Minimal logistical requireme
  - Low price point
- Integrate MOUT technologies
- Research Ad-Hoc wireless network technologies

Embedded Simulations

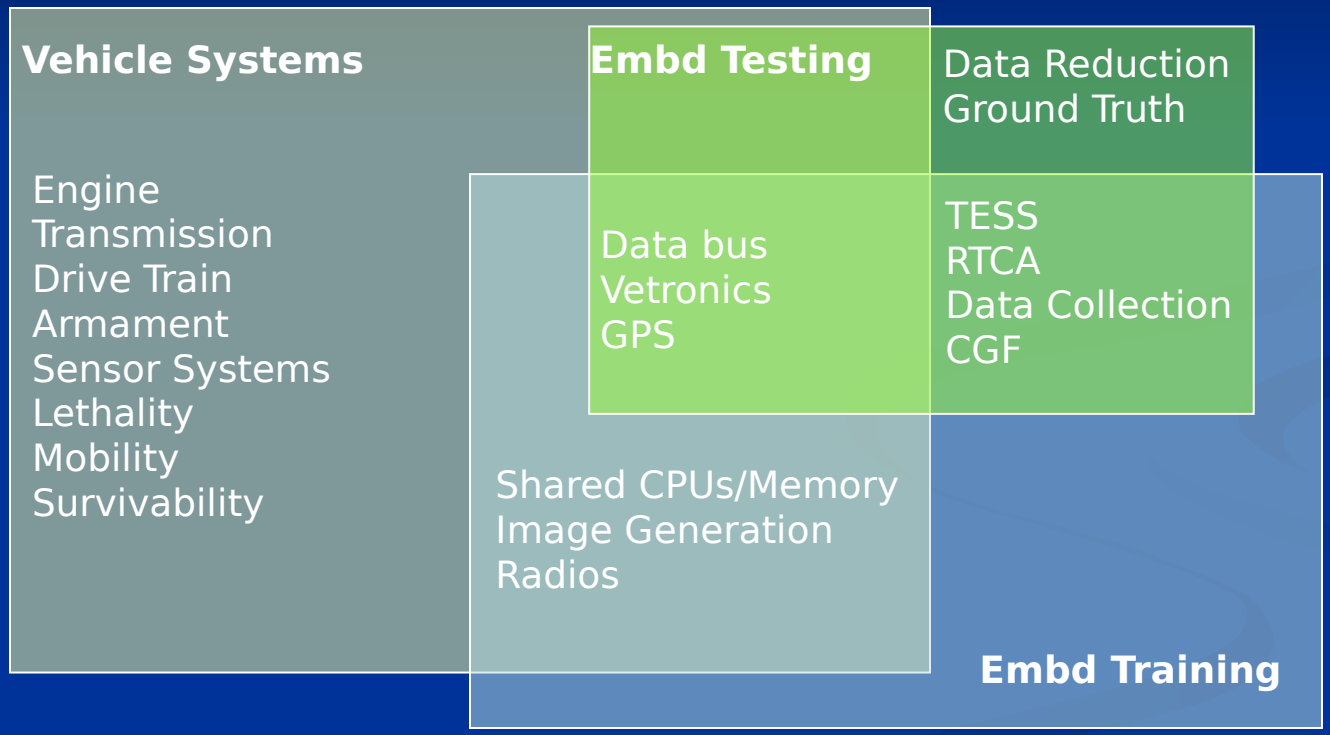
The challenge: On 3 March 1987, the Vice Chief of Staff of the Army, General Maxwell Thurman, signed a memorandum establishing Embedded Training as the preferred method for training…

A Rich History of Embedded Simulation Capabilit

1. Abrams Full Crew Interactive Skills Trainer (AFIST)
2. Dismounted Infantry Embedded Training (DIET)
3. Embedded Training for Dismounted Soldiers (ETDS)
4. INter-Vehicle Embedded Simulation & Training (INVEST)
5. Multiple Integrated Laser Engagement System (MILES)
6. Miles 2000
7. MILES XX1
8. Hardened Subminiature Telemetry & Sensor System (HSTS
9. Improved Target Acquisition Site (ITAS)
10. Instrumentation at the Combat Training Centers
11. Stinger Troop Proficiency Trainer (STPT)
12. Stryker Training Devices
13. Tank Weapons Gunnery Simulation System/Precision Gunnery Syste (TWGSS/PGS)
14. Thru-Site Video (TSV)
15. Virtual Individual Combatant Trainer for Embedded Rehearsal (VICTOR)

A New Challenge: Embedded Simulations

Leverage the benefits of embedded simulations to support training, test, and tactical operations



Future Combat Systems: Embedded Simulations

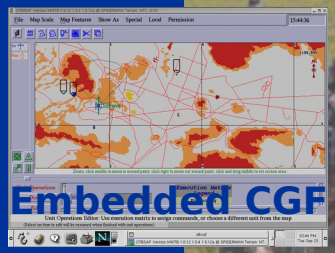
- No training specific equipment
- Distributed Embedded CGF
- Connectivity through C4ISR Network
- Embedded Tactical Engagement Simulations
- One Terrain Database

Integrated Embedded Simulation Environment Vision

Embedded TESS

Synthetic Environments

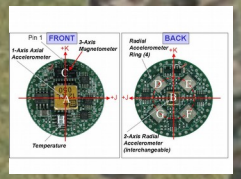
Adv Robotics Simulation



Embedded Full Task Virtual Training

Embedded Training for Dismounted Soldiers

r Action Review Intelligent Tutor



Embedded Instrumentation To support Testing

In Conclusion

- Think differently about how we provide training
  - Joint and International Exercises
  - New ways for training while deployed
  - Development of new skills for OOTW, Homeland Defense
- Identify opportunities for leveraging simulation and instrumentation assets